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A PROGRAM FOR THE STATISTICS OF THE VENEREAL DISEASES.

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It must be evident, even to the layman, that the damage done by the venereal diseases is enormous. Most persons now know, in a general way, that gonorrhea is a cause of the sterility of many marriages; the blindness of many new-born infants; the incapacitating of a large number of men for longer or shorter working periods of their lives by acute infection, and later, by chronic invalidism; and the infliction of painful and crippling illness upon hosts of innocent women. Most people know likewise that syphilis is a killing disease; that it is an important causal factor in the mortality of prematurely or stillborn infants; that it plays a large part in causing death immediately after birth at full term and during the first year of life; and that it frequently produces invalidism and death among young people as well as among the aged through its effects upon the circulatory and nervous systems. It is also well known that syphilis is responsible for a considerable part of insanity and economic incapacity. It is because these facts are generally appreciated that the world is now aroused to combat the venereal diseases, and that such conferences as this[1] are being held in this and other civilized countries of the world.

It is the function of the statistician of the venereal diseases to attempt an approximate measure of the losses we have vaguely referred to above. The statistician applies the yardstick and converts vague notions into simple, definite, numerical statements. He must gather the facts of sterile marriages, of blinded babies, of disabled men, of maimed women, and give the community a true picture of the grave damage thus done by gonorrhea in terms of the number of persons affected, the extent of their disability, the resulting economic loss, and the amount of curtailment of their longevity. In like manner, he must obtain from all available sources, from the records of Federal, State, and municipal departments of health, from dispensaries, from private physicians, from general hospitals, and from hospitals for mental diseases, the number of persons suffering from syphilis. He must measure the misery it causes, in terms of the number of babies that die from this cause *in utero* and soon after birth, the extent of disability during the working period of life, the amount of general and mental disease and, if possible, the curtailment of longevity. He must determine further the cost of this misery to the tax-paying public. In his search for facts, he must cooperate with medical investigators, guiding them in their researches through clues and suggestions obtained from his analyses. He can relate cause and effect perhaps better than others. His methods permit him to distinguish what is significant from what may be a chance relation. He can gauge results of special efforts made to control the incidence of these diseases. He keeps track of the progress being made.

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[1] This paper was originally presented in a less elaborate form at the U. S. Public Health Service Institute on Venereal Disease Control and Social Hygiene, Washington, D. C., Dec. 1, 1920.

This is the program of the vital statistician; but, with reference to the venereal diseases, his work is very largely in a rudimentary stage. Exact statistical methods have only begun to be employed in this field. It is, therefore, impossible at this time to present in a statistically satisfactory form the information which the workers in this field so much need and which it is obviously the business of the statistician to gather and develop. It is not too much to say that with the exception of a very few contributions to be referred to later, the information now available is, on the whole, untrustworthy and had better be replaced.

Exigencies of time make it necessary also to limit our discussion to the most outstanding features of our knowledge with reference to the venereal diseases. We shall, therefore, restrict ourselves to the facts of their prevalence as indicated by cases and deaths reported, and shall not consider the, as yet, unreliable data with reference to the damage caused.

To determine the prevalence of the venereal diseases, our first source of information is the reporting of cases or morbidity registration. The principle of notification holds that these infections are communicable and dangerous to the public health. This source of information is still in its infancy, though real forward steps are being made. Nearly all States in one way or another require the reporting of cases of venereal diseases to the health authorities, and have adopted the standard form of law which has the approval of the agencies engaged in the venereal-disease campaign. Other States have the essentials of venereal-disease reporting as a part of their requirements covering the reporting of communicable diseases. There is considerable variation in the details of administering these laws. According to the best data at our disposal, 7 States require the reports to include the name of the patient, 40 report on serial number, but of these, at least 17 in addition require the name of the patient when he fails to observe proper precautions. Practically all of these States have instituted their systems of reporting within the last three years, as a result of the active campaign against the venereal diseases undertaken during the World War, for the protection of soldiers and sailors.

The United States Public Health Service publishes summaries of the figures reported to it by the State boards of health (1).[2] In

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[2] Figures in parentheses refer to the bibliography at end of the article.

1919 the service received reports of 131,193 cases of gonorrhea, 100,466 cases of syphilis, and 7,843 cases of chancroid and other venereal infections. The total for all venereal diseases was 239,502 cases. The 1920 reports, summarized in Table I, show 172,387 cases of gonorrhea, 142,869 of syphilis, and 10,861 of chancroid, or a total of 326,117 cases of venereal diseases. Because of the limitations of the figures, no comment is possible on the significance of the data for these years. The increase of the 1920 figures over those for 1919 is probably due to increased activity in securing notification, and not necessarily to an increase in the prevalence of the diseases.

TABLE I.—*Cases of venereal diseases reported to State boards of health, July 1, 1919, to June 30, 1920.*[1]

State.	Total.	Gonorrhea.	Syphilis.	Chancroid.
Alabama	17,963	8,147	9,162	654
Arizona	423	309	113	1
Arkansas	4,769	2,856	1,633	280
California	9,102	4,877	4,225	......
Colorado	4,703	2,958	1,607	138
Connecticut	3,576	1,213	2,359	4
Delaware	938	634	262	42
District of Columbia[2]	......	......	......	......
Florida	5,010	2,041	2,766	203
Georgia	11,904	6,079	5,483	342
Idaho[3]	358	222	131	5
Illinois	31,876	17,670	13,222	984
Indiana	9,889	5,282	4,364	243
Iowa	4,167	2,935	1,113	119
Kansas	3,539	2,093	1,388	58
Kentucky	4,165	2,228	1,810	127
Louisiana	8,946	5,104	2,901	941
Maine	2,182	1,431	711	40
Maryland	3,714	1,928	1,475	311
Massachusetts	12,313	8,420	3,889	4
Michigan	19,682	10,986	8,355	291
Minnesota	9,527	5,366	3,952	209
Mississippi	3,351	2,052	1,115	184
Missouri	6,053	3,537	2,157	359
Montana	2,295	1,665	625	5
Nebraska	5,999	3,829	1,866	304
Nevada[2]	......	......	......	......
New Hampshire	1,212	769	422	21
New Jersey	7,187	3,445	3,477	265
New York	35,851	8,250	27,563	38
New Mexico	465	292	156	17
North Carolina	8,745	5,740	2,461	544
North Dakota	1,264	944	301	19
Ohio	13,748	6,838	6,353	557
Oklahoma[4]	7,665	4,430	2,869	366
Oregon	1,334	966	359	9
Pennsylvania[5]	1,584	534	1,002	48
Rhode Island[3]	1,224	485	732	7
South Carolina	11,826	5,719	5,508	599
South Dakota	1,250	962	257	31
Tennessee	6,893	3,702	2,655	536
Texas	15,264	8,790	5,324	1,150
Utah	1,925	1,343	556	26
Vermont	970	619	351	......
Virginia	5,621	2,680	2,570	371
Washington	4,189	3,186	945	58
West Virginia	6,246	4,607	1,417	222
Wisconsin	4,077	3,334	641	102
Wyoming	1,183	890	266	27
United States	326,117	172,387	142,869	10,861

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[1] Annual Report of the Surgeon General of the United States Public Health Service for the Fiscal Year 1920, p. 316. (See bibliography (1).)

[2] Venereal diseases not reportable.

[3] No report for June.

[4] No report for May and June.

[5] Three months only.

The efficiency of reporting varies greatly in the several States, and in no State has notification as yet reached the stage where it begins to give a true indication of the incidence of these diseases. This deficiency is best indicated by the large number of cases shown to exist through the draft examinations. Those States which, according to the draft results, showed a large number of cases of infection to exist are also the States in which the smallest number of cases are reported by the departments of health. But even in such States as Massachusetts, where there seems to be the highest degree of efficiency in reporting, the number of cases communicated to the State department of health is very small. There were reported in Massachusetts in 1920, 12,313 new cases of venereal diseases, or 3.19 new cases per 1,000 population.

If all of the cases reported in former years which still remain uncured in 1920 could be added to this figure, it would still remain low. There are no records available to show the number of uncured cases carried over from year to year. For purposes of illustrating how low the figures are, let us assume that these infections run an average course of five years, and that the same number of new cases were contracted in former years as in 1920. On the basis of these assumptions the incidence rate will be increased fivefold—from 3.19 per 1,000 to 15.95 per 1,000, or to 1.6 per cent—in the State of Massachusetts. As we shall see later, all the evidence points to a very much higher incidence of the venereal diseases in the community.

A serious defect in venereal-disease notification lies apparently in the laxity which surrounds the whole machinery of reporting these diseases. The figures for the several States presented above represent, we believe, new cases only, but we can not tell whether there are duplications, nor how many. There is the greatest variability among the States in these particulars, and it will be some time before the figures of notification will mean very much as a true measure of venereal-disease incidence. Moreover, supposing this difficulty in reporting procedure were removed, there would remain the further difficulty that only persons suffering from active or troublesome infections are likely to seek treatment. It is thus almost impossible to estimate the extent of undernotification of venereal disease. Some observers have remarked that not more than one-half of the new cases receive medical attention and that only about one-half of these cases are reported by the doctors. On this basis not more than one-fourth of the new cases ever get into the statistical records. In the States where less interest is shown, the proportion of notified cases is very low indeed.

There are three steps which must be taken by all American States in order that we may have eventually a truer idea of the prevalence of venereal diseases. The first is the passage of satisfactory laws making it obligatory to report cases of venereal diseases in the few States where no law is now operative, and the more rigorous enforcement of laws already enacted. The second and more important step is to educate physicians to make these reports in the interests of community defense against the venereal diseases. Only with the cooperation of physicians can complete morbidity statistics be obtained. This phase of the problem of securing case notification is linked with important considerations of mass and individual psychology. Both physicians and patients must be shown by actual examples of confidence maintained that a notice to the local and State board of health will not jeopardize the physician's or patient's social and economic interests except where the patient willfully endangers the health and security of others by ignoring proper principles of case management. This will serve better to break down the patient's resistance to notification and to insure the positive interest of physicians in the notification acts than will coercive methods. There is hardly any other problem in public-health education that requires more tact in the creation and management of public opinion than that of venereal-disease notification and control. The idea must be "sold" skillfully. An attempt to enforce the provisions of a venereal-disease notification act which ignores the patient's desire to keep knowledge of the case from his friends and neighbors will probably fail to produce results commensurate with the effort. The third step is to educate the public more and more to desire treatment at the hands of skillful and scrupulous physicians. This will increasingly result in the reporting of such cases. This end can be attained by informing the public on the symptoms of the disease and also on the effectiveness of treatment.

It is obvious that case reporting up to the present time has not progressed far enough to give us any considerable amount of dependable information on venereal-disease prevalence in the general population. The statistician must, therefore, turn to other more or less satisfactory indicators of the distribution and effects of venereal disease. The line of attack which has been followed was to collect the facts of incidence for various groups of the population. Highly instructive data (2) were obtained in the recent draft examinations when a large number of men proportionally distributed throughout the entire country were examined. In the second million, for example, 5.67 per cent had a venereal disease at the time of examination. Syphilis showed a rate of 1 per cent, gonococcus infection of 4.5 per cent, and chancroid less than two-tenths of 1 per cent. These figures are far from complete or adequate, since they include the result of clinical inspections without laboratory tests. Furthermore, many of the examining physicians were not sympathetic toward exempting men who had venereal diseases and therefore were not particularly keen about discovering or recording these infections.

No provision was made for recording age, color, and nationality on the medical examination blanks, with the consequent loss of a rare opportunity for obtaining valuable figures. As to the comparative frequency of the venereal diseases in the two color groups, there are good indications that the prevalence of these diseases was higher among colored draftees than among white. The tabulation of the percentages of infection found in the several States, shown in Table II, reveals consistently low rates in the northern and western States, where the proportion of the colored race is very low. Examples of the percentages found in these States are 1.3 per cent in Vermont and 2.4 per cent in Minnesota. Consistently higher rates were found in the southern States, where the proportion of colored is high—16.3 per cent in Florida, 13.6 per cent in Georgia, etc.

TABLE II.—*Percentage of the second million drafted men from each of the States found to be infected with a venereal disease at the time of arrival at mobilization camps.*[1]

State.	Percentage infected.	State.	Percentage infected.
Florida	16.3	Montana	3.4
Georgia	13.6	Nevada	3.3
Mississippi	13.2	Nebraska	3.1
South Carolina	13.1	Kansas	3.0
Louisiana	12.1	Iowa	3.0
Alabama	11.5	New York	3.0
Texas	11.2	Washington	2.9
Arkansas	10.5	California	2.8
Oklahoma	8.5	Rhode Island	2.8
District of Columbia	8.1	Connecticut	2.7
Delaware	7.7	Colorado	2.5
Virginia	7.1	Minnesota	2.4
North Carolina	7.0	Maine	2.4
New Mexico	6.7	Massachusetts	2.4
Maryland	6.7	Wyoming	2.3
Missouri	6.5	Idaho	2.2
Tennessee	6.5	Oregon	2.2
Illinois	5.3	Alaska	2.1
West Virginia	5.3	Wisconsin	2.0
Arizona	4.8	Utah	1.9
Indiana	4.7	North Dakota	1.9
Michigan	4.5	New Hampshire	1.8
Ohio	4.1	South Dakota	1.6
Kentucky	4.0	Vermont	1.3
Pennsylvania	3.6	State not specified	.6
New Jersey	3.5	United States	5.7

[1] Based on Table 11, p. 105, Defects Found in Drafted Men (2).

These indications were later confirmed by studies made in the Army during 1918 (3), comparing infection rates among white and colored troops. In every case the infection rate among the colored was much higher than among the white troops. For the entire Army the rate among the colored was about five times that among the white.

The morbidity statistics for those who have been admitted to the service of the Army and Navy indicate that the venereal diseases are one of the chief sources of disability among soldiers and sailors. The Navy reports covering the calendar year 1919 (4) show that 33,345 individuals out of an average complement of 298,774 were admitted to sick report with venereal-disease infections. The admission rate for these diseases was 111.62 per 1,000. Of this number, 20,410 were admitted for gonococcus infection, 4,916 for syphilis, and 8,019 for chancroid. This resulted in a loss of 558,421 working days—an average of nearly 17 days per case. The venereal diseases taken as a group accounted for approximately 18 per cent of all the admissions for diseases and 15 per cent of all sick days. But since the sailors were frequently on shore leave in foreign ports, where conditions for contracting venereal diseases are more favorable than in the United States, these figures for 1919 are probably not a fair indication of the incidence of the venereal diseases in the civil population of the United States.

Contrasted with these figures are those of the Army reports for the enlisted men stationed in the United States (5). In this group, out of an average strength of 306,963 men, 26,815 venereal-disease cases were reported during the year 1919. This makes an annual rate of 87.36 per 1,000. There were 16,246 admissions for gonococcus infection, 6,557 for syphilis, and 4,012 for chancroid. About 11 per cent of all admissions to sick report were occasioned by venereal diseases. More admissions were due to gonococcus infection than were due to any other disease, except tonsillitis, bronchitis, and mumps. Sickness from these infections resulted in absence from duty amounting to 871,533 days, or 13.4 per cent of all absences on account of sickness. They caused a greater loss of time than any other disease except tuberculosis.

Venereal diseases were reported less frequently among officers than among enlisted men. In an average strength of 55,554 American officers serving in all countries, there were 1,672 admissions—an annual rate of 30.10 per 1,000. Six per cent of all admissions to sick report, and 6 per cent of all sick days were due to venereal diseases.

Col. Vedder's report (6) of Wassermann surveys in various large groups of the Army furnishes evidence of a greater prevalence of syphilis in the Army than these reports of routine clinical examinations would indicate. His studies have been made with painstaking accuracy upon complete groups, and are worked out in such detail that they are among the best sources we have for data on the prevalence of syphilis. In a group of 1,577 white enlisted men, of whom 3.4 per cent were known to have syphilis, he obtained 12.64 per cent of positive reactions. The percentage of infection was lower among the younger men and increased regularly with advancing age.

Lower infection rates were found among men of officer caliber (7). Among 3,203 candidates for commissions in the Regular Army, 188, or 5.86 per cent, yielded positive reactions. Vedder obtained 5.46 per cent of positive reactions among the cadets at West Point.

On the basis of his wide experience in examining men in the Army, Col. Vedder estimates that about 20 per cent of the young adult male population from which the Army is recruited have syphilis.

In recent years many groups in the civilian population have likewise been examined intensively through the use of the Wassermann reaction, and various indices of the prevalence of syphilis have been obtained. Taking all the evidence together we are inclined to agree with the estimate of the British Royal Commission on Venereal Disease (8) that no less than 10 per cent of the population of the large cities have been infected with this disease. As this is by all accounts an underestimate, and as the prevalence of infection in the rural areas is somewhat lower, this figure (10 per cent) may well prove to be a safe estimate for the country at large.

As might be expected, these figures on the prevalence of syphilis vary from place to place and from group to group. Everything depends upon the social and economic status and the age, sex, and color of the subjects examined. The figures vary from 100 per cent for some groups of prostitutes to zero or a rarity among unmarried girls of good character. Most figures quoted run high because they are for persons among whom a large proportion of syphilis may be expected, as among insane persons, tuberculosis patients, criminals, patients admitted to hospitals or in private practice. As syphilis is clearly a factor in the defect or disability of such persons the rates will be higher than in the population at large. Between 20 and 30 per cent of these persons appear to be syphilitic.

Since Col. Vedder published his summaries, valuable evidence concerning the prevalence of syphilis among one class of supposedly healthy persons has been obtained through Wassermann tests given to pregnant women by many hospitals and dispensaries. These tests are given as a part of the routine procedure of admission, because it has already been established that treatment of the mother during pregnancy is a means of guarding the child against the serious consequences of a syphilitic infection acquired before birth. Among studies reporting results of these tests, the work of Dr. J. Whitridge Williams may be mentioned. Among 4,000 patients in the obstetrical department of the Johns Hopkins Hospital, 449, or 11.2 per cent, presented a positive reaction (9). The percentage of infection was much higher among colored than among white women; 16.29 per cent of the colored and only 2.48 per cent of the white women gave positive reactions. The racial differences found in these studies are similar to differences reported elsewhere. The prevalence of syphilis among Negroes is considerable, but there is as yet no reliable index of this prevalence. Few data have been collected for Negroes in the rural areas where the majority still live and where conditions of life are not so likely to lead to the spread of venereal infection as in the cities.

There have been no similar surveys to determine the prevalence of gonorrhea in the general population, and it is almost a hopeless task to gather the data for this widely spread disease. There are so many cases that are mild and so many among young people who would naturally conceal their disease, that it is out of the question to get anything like complete reporting of gonorrhea. Much of value might result from investigation into the prevalence of gonorrhea among specific groups of the population like those of Col. Vedder's for syphilis. But there would be many difficulties to overcome, primarily because of the present indifference of the communities to the disease.

The importance of the venereal diseases may also be gauged by the extent to which they cause death or curtail the life span.

Gonorrhea is obviously less important than syphilis in terms of mortality. It is only occasionally that an attack of this disease leads directly to a fatality. Clinical experience shows that, in most cases, the disease, if not at once arrested, takes on a chronic type and, in many instances, becomes a potent source of physical impairment and disability by way of arthritis, endocarditis, cystitis, and especially salpingitis in women. When deaths occur from any of these conditions, and there are many, it is only very rarely that the physician refers to the original gonococcus infection. It is, therefore, not surprising that the number of deaths ascribed to gonorrhea in official publications is very small indeed. In the registration area of the United States in 1919, there were reported only 621 deaths among the more than 85,000,000 persons in the area, or, at a rate of 0.7 per 100,000 (10).

There is much better statistical material with reference to the mortality from syphilis. This disease actually kills, though rarely immediately. In addition, certain unquestionable sequelæ of syphilis, such as general paralysis of the insane and locomotor ataxia, cause many deaths. Fortunately, more and more deaths which are due to these late manifestations of syphilis are being returned as such, without much reservation. It is, therefore, possible to bring together considerable, even though incomplete, material as an indication of the mortality caused by syphilis. In the registration area of the United States in 1919 (10), there was a total of 13,861 deaths reported from syphilis, locomotor ataxia, and general paralysis of the insane combined. The rate per 100,000 for this group of syphilitic conditions was 16.3. It appears from Table III that even this incomplete count ranks syphilis twelfth in the list of causes of death.[3]

TABLE III.—*Deaths from leading causes in the United States in 1919.*[1]

Cause of death.	Number of deaths.	Death rate per 100,000 population.
1. Organic disease of the heart	111,579	131.0
2. Tuberculosis (total)	106,985	125.6
3. Influenza	84,113	98.8
4. Bright's disease	69,477	81.6
5. Cancer and other malignant tumors (total)	68,551	80.5
6. Cerebral hemorrhage (apoplexy)	65,951	77.5
7. Pneumonia (total)	64,493	75.7
8. Congenital debility, icterus and sclerema	44,423	52.5
9. Broncho-pneumonia	40,720	47.8
10. Diarrhea and enteritis (under 2 years)	37,635	44.2
11. Diseases of the arteries, atheroma, aneurism, etc	18,976	22.3
12. Syphilis, locomotor ataxia, and general paralysis of the insane, combined	13,861	16.3
All causes	1,096,436	1,287.7

[1] Based on Table II, p. 88, Mortality Statistics, 1919 (10).

In the experience of the industrial department of the Metropolitan Life Insurance Co. similar figures were obtained. The rates for syphilis, locomotor ataxia, and general paralysis of the insane for the ten-year period, 1911 to 1920, are presented in Table IV and Chart I. The rate for the three diseases combined for the entire period was 14.2 per 100,000. The combined rate increased regularly from 11.0 in 1911 to 16.6 in 1917, this increase being registered not so much because of the increased prevalence of the disease as because of the greater effort being made to have physicians report deaths from syphilis as such. Since 1917 the combined rate has shown a marked decline. During this period there has been no slacking in effort to secure a true registration of syphilis deaths, and reporting practice has steadily improved. It seems probable, therefore, that there has been a decrease in mortality from syphilis. It is significant that this decline is very decided in the case of syphilis alone, rather than in the other two diseases which are late manifestations of syphilitic infection. And further, so far as it is possible to judge from a comparison of the rates registered in single years, the difference between the rates of 1917 and 1920 appears to be chiefly accounted for by the lowering of rates in the ages between 25 and 55. This comparison is presented in Table V. The suggestion may be ventured that these declines in the earlier and middle years of life are the result of increasing effectiveness in the treatment of syphilis. Possibly also, these declines may indicate that the effects of the measures to control this disease

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[3] Many attempts have been made to allocate to syphilis the deaths presumably due to this disease. The method consists in assuming that a certain percentage of the deaths from certain diseases are due to syphilis. No less a clinician than Osler has tried his hand at it (11). Thus, he took the Registrar General's report of 1915 of England and Wales, and by assuming that various proportions of the diseases of the nervous and vascular systems were syphilitic in origin, and likewise a large proportion of stillbirths and of deaths of infants assigned in the report to congenital debility, he concluded that 60,000 deaths were, in fact, syphilis deaths, instead of the few deaths actually reported as due to this disease. Numerous other investigators have made similar estimates, but not all have had the equipment of Osler, to assume definite proportions of the deaths from certain diseases as due to syphilis. There is, therefore, the greatest variation in the guessing. The fact is no one really knows the true percentage, but nearly everyone agrees that the proportion is large; and even if the most conservative figures are taken as the most probable, we find that syphilis is converted from one of the minor to one of the most important causes of death—one of the very first, ranking with tuberculosis, pneumonia, and heart disease.

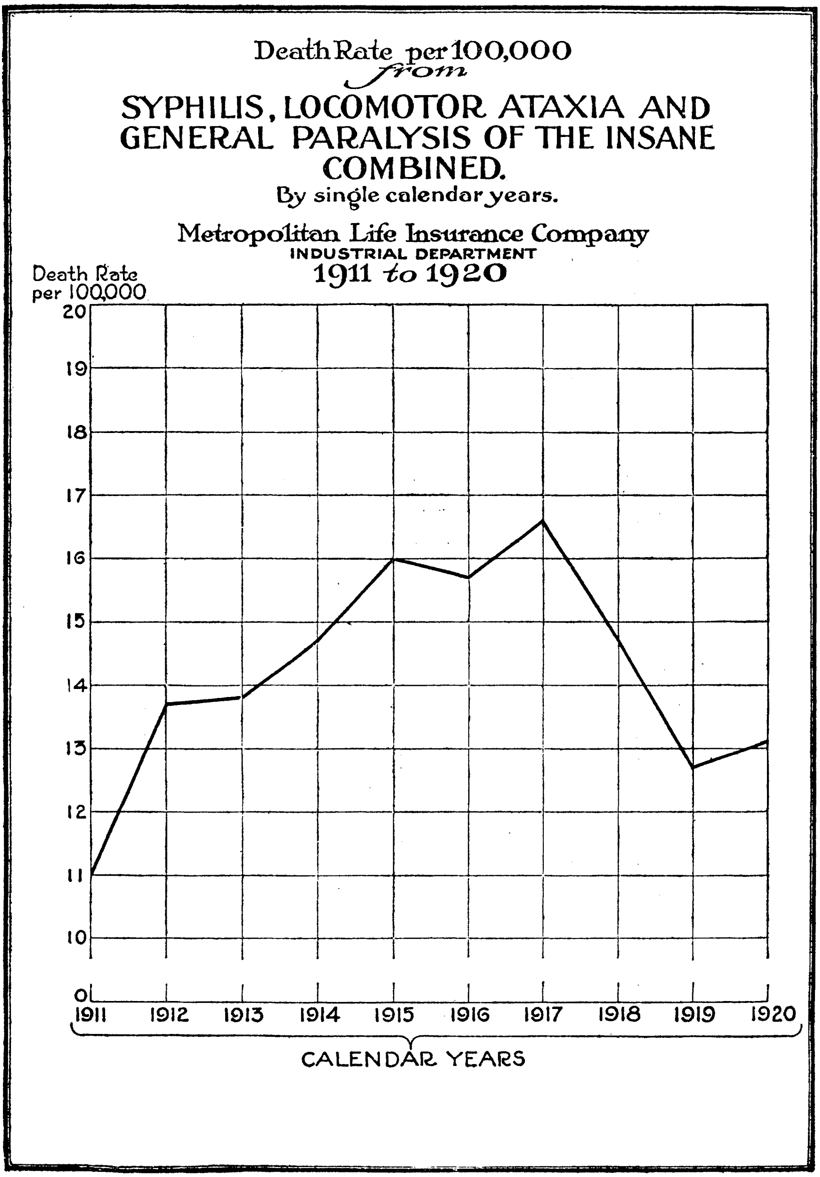

CHART I

initiated during the war are being shown, and that the number of serious infections contracted is actually being reduced. It will be interesting indeed to watch the figures in the next decade and see whether similar or even more accentuated declines are continued.

TABLE IV.—*Death rates per 100,000 for syphilis, locomotor ataxia, and general paralysis of the insane, industrial department, Metropolitan Life Insurance Co. 1911 to 1920.*

Cause of death.	Death rates per 100,000.										
	1911–1920	1920	1919	1918	1917	1916	1915	1914	1913	1912	1911
Syphilis	8.7	7.5	7.3	8.3	12.6	11.9	11.4	9.8	6.0	8.1	3.4
Locomotor ataxia	1.3	1.0	.9	1.1	1.1	1.1	1.3	1.4	1.9	1.4	1.9
General paralysis of the insane	4.2	4.6	4.5	5.3	2.9	2.7	3.3	3.5	5.9	4.2	5.7
Total	14.2	13.1	12.7	14.7	16.6	15.7	16.0	14.7	13.8	13.7	11.0

TABLE V.—*Death rates per 100,000 from syphilis, industrial mortality experience of Metropolitan Life Insurance Co., by age periods, 1917 and 1920.*

Age period (years).	1920	1917	Percentage decline, 1920, since 1917.
All ages—1 and over	7.5	12.6	40.5
1 to 4	1.8	2.7	33.3
5 to 9	.3	.5	40.0
10 to 14	1.1	.8	[1]37.5
15 to 19	1.2	1.6	25.0
20 to 24	4.1	3.4	[1]20.6
25 to 34	8.4	14.5	42.1
35 to 44	16.9	33.7	49.9
45 to 54	21.1	38.4	45.1
55 to 64	20.5	32.1	36.1
65 to 74	15.3	23.4	34.6
75 and over	10.5	17.3	39.3

[1] Per cent increase.

Although physicians are reporting more accurately than ever before, it is clear that the rates for recent years represent only a small fraction of the true mortality figures for syphilis. Many physicians still report deaths from syphilis as due to other causes and especially to the secondary causes of death or the sequelæ which are so often associated with it. Clinical work is showing clearly that paralysis of the insane and locomotor ataxia are not the only conditions which are syphilitic in character, but that a considerable number of other diseases are, in many instances, at least, disguised manifestations of syphilitic infection. Thus, congenital debility of newly born infants is, in large measure, the result of syphilis. A very large portion of cases of aneurism is chargeable to syphilis, as are also many deaths from organic diseases of the heart, angina pectoris, etc. The more general use of the Wassermann reaction, as well as of post-mortem examinations, is bringing out the degree to which syphilis is the underlying factor in the deaths ascribed to other diseases and conditions. For a truer expression of the actual mortality rate from syphilis, we shall have to wait until we know much more definitely than at present the proportion of the deaths assigned to these associated conditions which are, in fact, of syphilitic origin.

But even at the present time, valuable information can be obtained from a study of the syphilis death rates that are available, if we consider the deaths reported as a fair sample of the total which may some day be revealed. In this way we may get an insight into the comparative damage caused by syphilis in the two color groups, in the two sexes, and in the various age periods of life. Again, the experience of the industrial policyholders of the Metropolitan is useful. Table VI and Chart II, show, for the 10-year period, 1911 to 1920, the number of deaths and the death rate for the races, white and colored, and for each of the sexes under each color, and by the several age periods. It is interesting to observe the very much higher rate for Negroes than for whites. In fact, the rate for the former is about three times the rate for the latter, which is consistent with the general medical impression as to the relatively greater frequency of the disease among colored people than among the whites. Moreover, the rate is uniformly higher among males than among females in both races, being about twice as high in the one sex as in the other. It is unfortunate that the figures for these insured do not include the experience of children under 1 year of age, in whom there is a very high death rate from this disease.[4] In the registration area for the years 1910 to 1915, the death rate from syphilis in the first year of life was 137.6 per 100,000, and this is, in fact, the highest rate from syphilis for any age period during life (12). The rate drops rapidly to its minimum in the period between 5 and 15. Syphilis in early infancy is usually congenital, very acute, and frequently fatal. It is, therefore, not surprising that children at the school ages should show low rates; for those who were infected in infancy have been, to a large degree, weeded out. New infections are rare at these ages. Beginning with the age period 15 to 19, and thereafter, there is a continuous increase in the number of infections and of deaths. The syphilis deaths from this point onward are clearly the result of acquired infections. Very high rates are registered in the ages beyond 45. Among the colored males in age group 65 to 74 the very high figure 122.8 per 100,000 is reached. This is a rate which suggests tuberculosis rather than syphilis.

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[4] Dr. J. Whitridge Williams reports that of 705 deaths occurring in a series of 10,000 consecutive deliveries, 186, or 26.4 per cent, were due to syphilis. In the white race, syphilis caused 12.8 per cent of the deaths, and in the colored, 34.9 per cent, and is "far and away the most common etiological factor in the production of death" (13). In a more recent study of 4,000 deliveries he found that 104, or 34.4 per cent, of the 302 deaths were due to syphilis. Among white infants, 12.1 per cent died of this cause, and among colored infants, 45.2 per cent. Syphilis was the most important single cause of death and was nearly as important as the next three causes combined, which together were responsible for 37.3 per cent of the deaths (14).

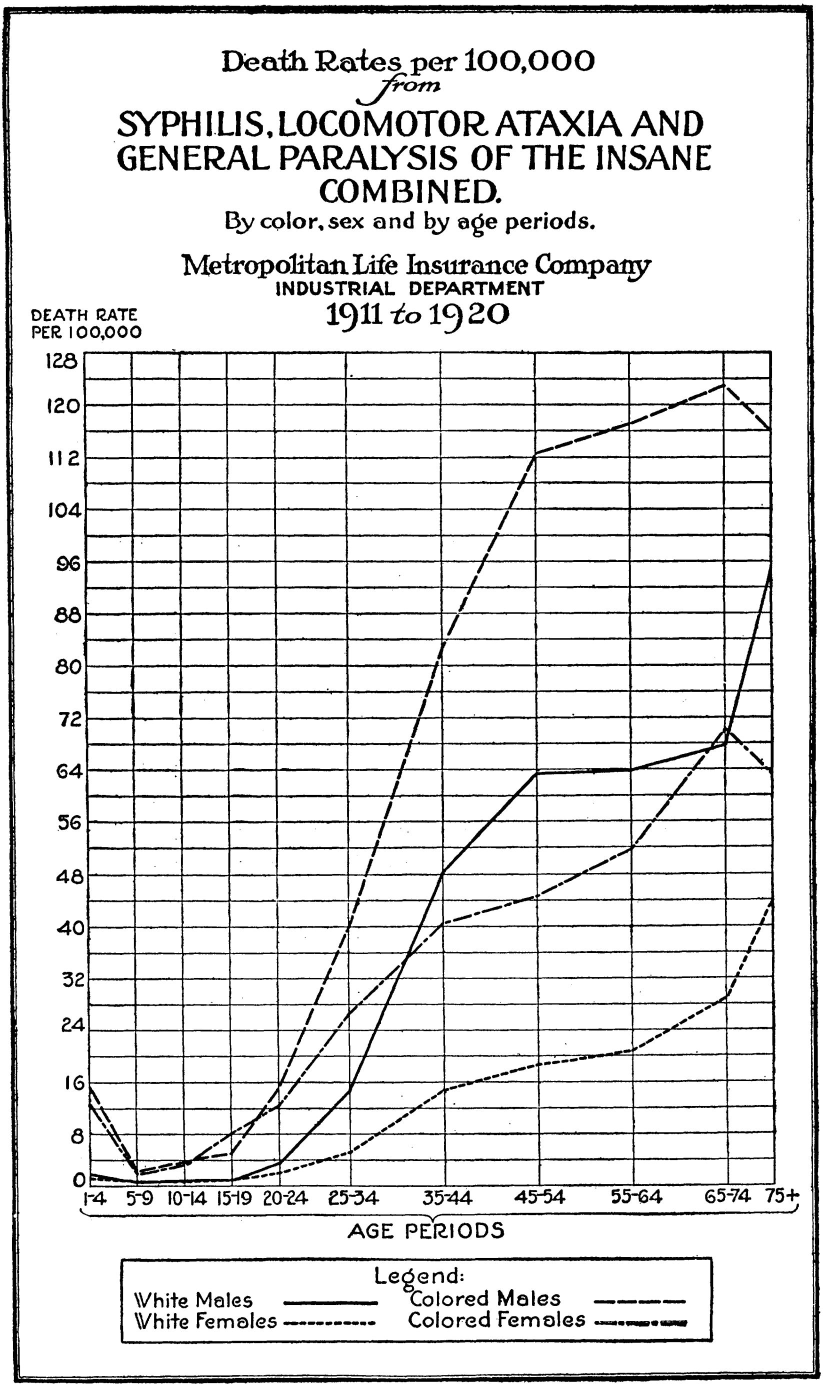
Death Rates per 100,000
from
SYPHILIS, LOCOMOTOR ATAXIA AND
GENERAL PARALYSIS OF THE INSANE
COMBINED.
By color, sex and by age periods.
Metropolitan Life Insurance Company
INDUSTRIAL DEPARTMENT
1911 to 1920
DEATH RATE
PER 100,000
128
120
112
104
96
88
80
72
64
56
48
40
32
24
16
8
0
1-4
5-9
10-14
15-19
20-24
25-34
35-44
45-54
55-64
65-74
75+
AGE PERIODS
Legend:
White Males
White Females
Colored Males
Colored Females

CHART II

TABLE VI.—*Number of deaths and death rates per 100,000 for syphilis, locomotor ataxia, and general paralysis of the insane, combined, by color, by sex, and by age groups, industrial mortality experience of the Metropolitan Life Insurance Co., 1911 to 1920.*

Age period (years).	All persons.		White.				Colored.			
			Male.		Female.		Male.		Female.	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
All ages—1 and over.	14,459	14.2	6,642	16.4	3,590	7.1	2,503	46.1	1,724	25.7
1 to 4	216	2.4	79	1.8	52	1.2	46	15.4	39	12.9
5 to 9	78	.6	27	.4	29	.5	12	2.2	10	1.8
10 to 14	107	.9	41	.7	26	.5	21	3.7	19	3.2
15 to 19	168	1.5	45	.9	46	.9	28	5.1	49	8.1
20 to 24	410	4.0	141	3.5	97	2.0	85	15.3	87	12.4
25 to 34	2,115	13.0	839	14.9	425	5.3	455	40.0	396	26.6
35 to 44	3,943	33.5	1,810	48.4	876	14.8	786	82.8	471	40.5
45 to 54	3,572	41.5	1,757	63.4	841	18.6	656	112.4	318	44.5
55 to 64	2,425	42.8	1,223	63.8	631	20.8	357	117.2	214	51.7
65 to 74	1,177	49.1	559	67.7	379	28.9	131	122.8	108	70.2
75 and over	248	64.5	121	95.1	98	43.9	16	116.0	13	63.4

Another line of evidence shows also how serious syphilis is as a cause of death. The Medico-Actuarial Mortality Investigation (15), which covers the experience of the larger American life insurance companies for a period of years, shows that those who admitted a history of syphilis prior to admittance to the companies, had a mortality at least 50 per cent higher than that expected according to the mortality table. In the experience of the Gotha Insurance Co., of Germany (15), a series of 1,778 men who had undergone treatment for syphilis and who were traced for a long period of years, likewise showed a ratio of actual to expected mortality in excess of the table. There were 487 actual deaths against 290 expected according to the experience of the Gotha among all insured men—the ratio of actual to expected being 168 per cent. It must be remembered that these insurance risks were carefully selected lives, many of whom had had thorough treatment for several years and had been free from symptoms prior to their acceptance. Medical directors of insurance companies are, as a class, suspicious of syphilitics. They do not expect them to be good risks and, therefore, are very careful to take only those who are in other respects very desirable applicants. An extra mortality of 50 per cent is probably a minimal figure and only an approximation to the extra mortality which prevails among syphilitics in general. It will prove a very interesting study to follow a group of known syphilitics and determine their mortality and prospective longevity very much as has been done for the tuberculous.

Even the very defective figures at our disposal confirm our initial assumption that the venereal diseases present public-health problems of first importance. There can be no longer any skepticism as to that. Fortunately, the tendency in public-health policy is to recognize their importance, but much more progress could be made if, along with the positive program of control, there were carried out a well-considered plan to gather accurate information not only of the incidence of the diseases but also of the damage they do. The program of research is every bit as important as that of immediate control of these diseases. In fact, it underlies that control as a primary condition. If more satisfactory information were at hand with reference to the incidence of these diseases, larger appropriations for their management would undoubtedly become available. Also, as information became reliable, it would be possible for the workers in the field, from time to time, to check up their success or failure in their administrative measures. It is, therefore, most important to work out comprehensive plans for the improvement of the statistical picture of the venereal diseases.

The social workers in the field of the venereal diseases are, in the last analysis, those to whom we must turn for the improvement of the statistics of these conditions. They must become missionaries in popularizing the reporting of the venereal diseases as required by law. Each one in his own community must overcome the many prejudices and difficulties which to-day confront the reporting of these diseases. It will depend largely upon their enthusiasm whether physicians will, to an increasing degree, take seriously the requirements of the law. They should obtain the confidence of physicians and encourage them to report their cases of syphilis without disguise and without reservation. There must be a nation-wide campaign for stimulating venereal-disease reporting by physicians. Physicians will take note of such a campaign if it is continued long enough and if done in an efficient and sincere manner. The great mass of physicians would not be opposed to venereal-disease reporting, either of cases or deaths, if they really were convinced that no harm would come to their patients and if they felt the community really wanted it. Fifty per cent of the physicians of the United States have already agreed to cooperate with the United States Public Health Service (16). The social workers can also make intensive surveys of the prevalence of the venereal diseases in the general population in the various parts of the country. This can be done in cooperation with the medical profession of their cities, and must include the hospitals and dispensaries and other medical facilities of the community. In this way it might be possible to develop an index of the prevalence of the venereal diseases over a large area of the United States which would have greater merit than the indices we now have for men only at the draft ages, made available through the recent Army examinations.

Another investigation of equal importance can be carried out cooperatively through the combined activities of many syphilographers in various parts of the country and some central agency which would serve as a statistical laboratory. It is suggested that those physicians whose practice brings them into contact with large numbers of cases of syphilis over long periods of time shall send to this central statistical office records covering the history of their patients from the beginning of their infection through the period of treatment and, finally, to their dismissal either through death or through clinical recovery. It is possible that many physicians will be ready to turn over the valuable material of this character which they have accumulated through their practice. The records of the Army and of the Navy will be invaluable in this connection, for in these establishments records of the early infection of the officer personnel are available in large numbers covering many decades. It should be possible from such a combined study to discover, first, the actual mortality of persons suffering from syphilis as suggested above, and, second, the types of impairments, or rather the sequelæ which follow in the course of syphilitic infection. It is conceivable that a large series of such records would show that there exists a fairly constant relationship between the syphilitic infection and the various types of syphilitic sequelæ; that, for example, aneurisms and other arterial infections follow in a certain proportion of the initial syphilitic lesions; that locomotor ataxia results in a certain proportion of the cases; that, similarly, general paralysis of the insane, organic heart disease, and other conditions follow in a certain number of infections. Such a study must be based upon a large number of cases distributed over a wide area of the country, and must take cognizance of the statistical requirements of age, sex, and race of the individuals included. This would permit the conversion, ultimately, of the crude mortality figures as annually published into truer measures of syphilis mortality. There would also be any number of valuable by-products from such a study which would justify the expenditures of money and of effort.

The statistics of venereal diseases are at the beginning of their development. They have been, for the most part, descriptive rather than analytic in character. But, elementary as they have been, they have served very materially to develop the campaign of social hygiene. Much still remains to be done in this important field of public health work. The development of the program will require not only a larger mass of accurate and fundamental data but will call for higher methods of statistical analysis than have heretofore been necessary. Special problems of research will tax the ingenuity of the most skillful technicians. The statistician will find more and more opportunity for active cooperation with the practical workers in the field of venereal disease, and the two groups should work more cordially together.

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SMALLPOX IN THE UNITED STATES.

The accompanying table shows the number of reported cases of smallpox per 1,000 population by months, from January to September, 1921, compared with the same months during 1920, and the medians for 1913 to 1920, inclusive.

The median was ascertained by arranging the figures so that the greatest number was first, the next smaller number was second, and so on to the smallest number, which was placed last. The middle number of the array was then selected as the median. Data were not available for all the States for the full eight years. As many years as